

## **Vermont Mental Health Performance Indicator Project**

DDMHS, Weeks Building, 103 South Main Street, Waterbury, VT 05671-1601 (802-241-2638)

### MEMORANDUM

TO: Vermont Mental Health Performance Indicator Project  
Advisory Group and Interested Parties

FROM: John Pandiani and Christine Van Vleck

DATE: September 12, 2003

RE: Inpatient Readmission Rates

The following analysis was conducted in response to a request from Diane Bowen, Director of Performance Improvement with Frontier Health in East Tennessee. This report complements our August 22 PIP that provided an overview of inpatient behavioral health utilization rates by Vermont residents during 1990-2001 ([www.state.vt.us/dmh/Data/PIPs/2003/pip082203.pdf](http://www.state.vt.us/dmh/Data/PIPs/2003/pip082203.pdf))<sup>1</sup>.

The analysis reported this week focuses on hospital readmission rates. The hospital readmission rates reported here are the percent of individuals who had been hospitalized for behavioral health care during calendar year 2000 who were also hospitalized for behavioral health care during 2001. These readmission rates are calculated separately for two groups of people who were hospitalized during 2000: people identified as having a mental health disorder and people identified as having a substance abuse disorder. For each group, three readmission rates are reported: total readmissions with indication of a behavioral health disorder (mental health or substance abuse), total readmissions with indication of a mental health disorder, and total readmissions with indication of a substance abuse disorder.

It is important to keep in mind when considering these results that hospitalization for mental health disorders and hospitalization for substance abuse disorders are not mutually exclusive. Individuals may have had one hospitalization with only a mental health diagnosis and another hospitalization with only a substance abuse diagnosis. In addition, many episodes of hospitalization were recorded as having both a mental health diagnosis and a substance abuse diagnosis. In 2000, more than a third of all episodes of hospitalization for behavioral health in our database included indication of both a mental health disorder and a substance abuse disorder, and more than 40% of all individuals who were hospitalized for behavioral health care had been hospitalized for both mental health and substance abuse disorders during the year.

As you will see, readmission rates for people who had been hospitalized with a mental health disorder were somewhat lower than readmission rates for people who had been hospitalized with a substance abuse disorder (24% vs. 28%). People who had been hospitalized with a substance abuse disorder during 2000 were as likely to be readmitted during 2001 with a mental health disorder (25%) as to be readmitted with a substance abuse disorder (24%). People who had been hospitalized with a mental health disorder during 2000 were more likely to be

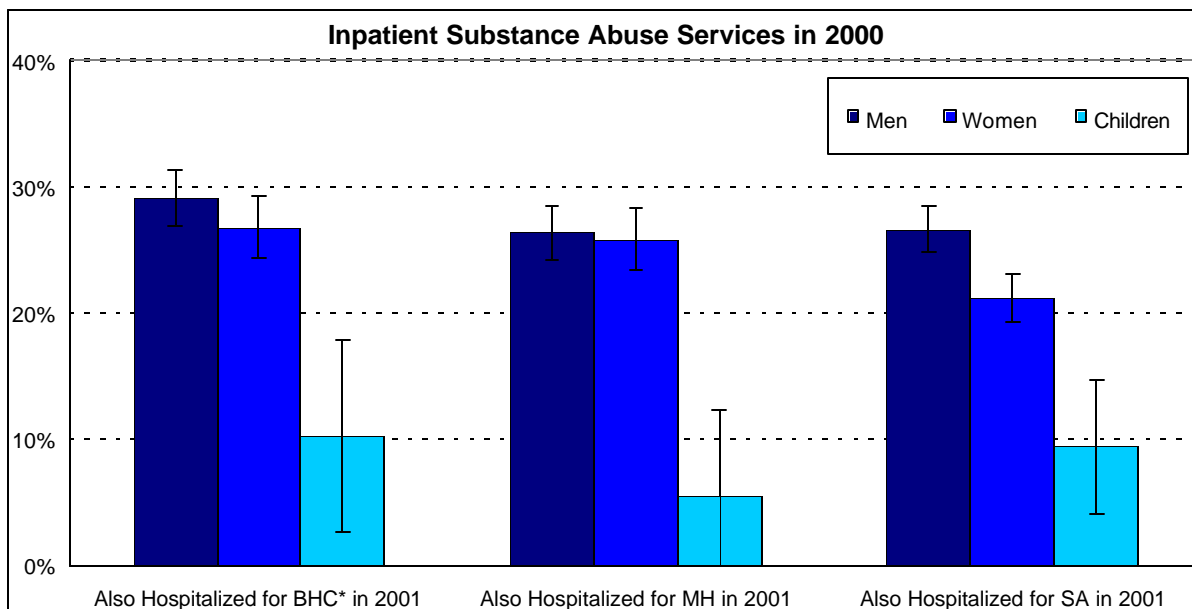
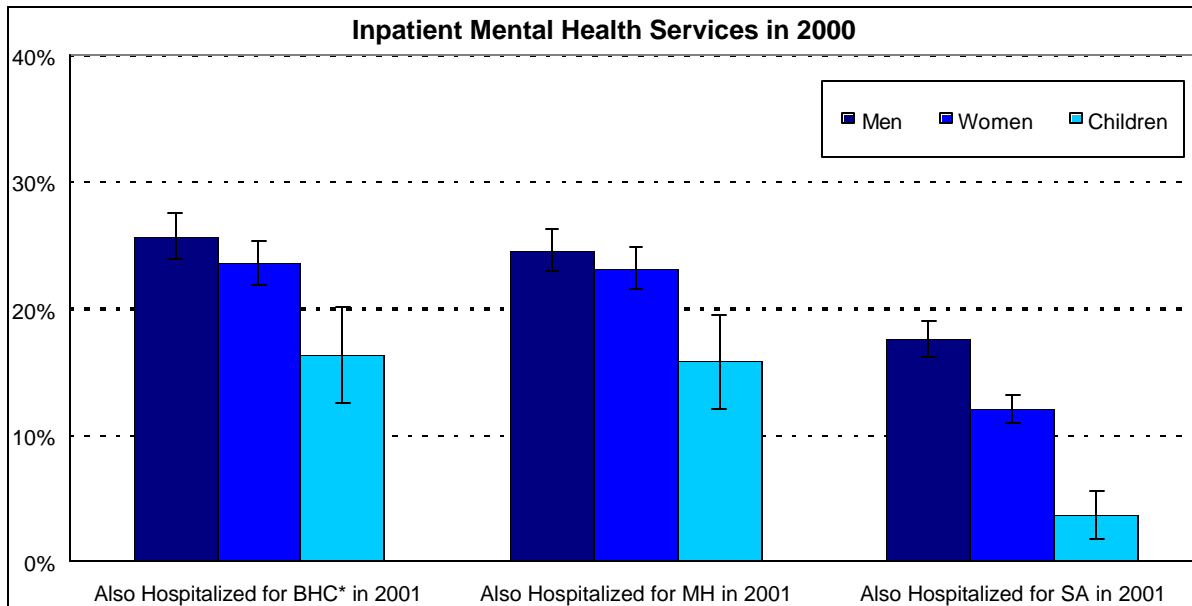
readmitted during 2001 with a mental health disorder (23%) than with a substance abuse disorder (14%).

Readmission rates for adult men who had been hospitalized with a mental health disorder were somewhat higher than those for adult women, and both were substantially higher than readmission rates for children (26% and 24% vs. 16%, respectively). This pattern was also true for individuals who had been hospitalized with a substance abuse disorder (29% for men and 27% for women vs. 10% for children).

We look forward to your comments on these findings and your suggestions for future analysis regarding hospital readmission rates or other areas of interest. As always, you can reach us at [pip@ddmhs.state.vt.us](mailto:pip@ddmhs.state.vt.us) or 802-241-2638.

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- 1 Please note that the data we distributed on August 22 included an over count of patient days and episodes of care at the Brattleboro Retreat for 2000 and 2001. This over count had a relatively small effect on the statewide count of episodes of care (+1.5%) and a somewhat larger effect on the number of patient days (+9%). The impact on patient days and episodes of care for the Brattleboro Retreat, however, were substantial. This error, however, did not affect the unduplicated counts of people served which were correct in the original report. The error is currently being corrected and new reports will be distributed in the near future.

# Behavioral Health Readmission Rates for Vermont Residents CY 2000 Inpatient Mental Health and Substance Abuse Service Recipients Also Admitted for MH and/or SA in CY 2001



\*BHC-Behavioral Health Care includes both inpatient mental health (MH) and inpatient substance abuse (SA) services.

Information is derived from the Hospital Discharge Data Set maintained by the Vermont Department of Health, and database extracts provided by the Brattleboro Retreat and Vermont State Hospital. Because data sets used in this analysis do not share unique identifiers, Probabilistic Population Estimation was used to measure caseload size and overlap (with 95% confidence intervals).

Analysis Performed by the Vermont Mental Health Performance Indicator Project

# Hospital Readmission Rates for Inpatient Mental Health Services for Vermont Residents

Individuals Hospitalized for MH Services in CY00							
	# Hospitalized for MH in CY00	Also Hospitalized in CY01 for BHC		Also Hospitalized in CY01 for MH		Also Hospitalized in CY01 for SA	
		Number	% of CY00 also served in CY01	Number	% of CY00 also served in CY01	Number	% of CY00 also served in CY01
Total	2,922 ± 20	700 ± 34	24% ± 1.2%	679 ± 33	23% ± 1.2%	406 ± 24	14% ± 0.8%
Children	245 ± 5	40 ± 9	16% ± 3.8%	39 ± 9	16% ± 3.7%	9 ± 5	4% ± 1.9%
Adult Women	1,373 ± 14	324 ± 24	24% ± 1.7%	319 ± 23	23% ± 1.7%	166 ± 15	12% ± 1.1%
Adult Men	1,304 ± 14	335 ± 23	26% ± 1.8%	321 ± 22	25% ± 1.7%	231 ± 18	18% ± 1.4%
Age							
0-17	245 ± 5	40 ± 9	16% ± 3.8%	39 ± 9	16% ± 3.7%	9 ± 5	4% ± 1.9%
18-34	766 ± 10	186 ± 18	24% ± 2.4%	179 ± 17	23% ± 2.3%	125 ± 13	16% ± 1.8%
35-49	1,026 ± 14	288 ± 24	28% ± 2.4%	279 ± 24	27% ± 2.3%	190 ± 18	19% ± 1.8%
50-64	470 ± 7	115 ± 12	25% ± 2.5%	113 ± 11	24% ± 2.4%	59 ± 7	13% ± 1.6%
65+	415 ± 5	70 ± 6	17% ± 1.4%	70 ± 6	17% ± 1.4%	22 ± 2	5% ± 0.5%
Female	1,483 ± 14	340 ± 25	23% ± 1.7%	334 ± 24	22% ± 1.7%	172 ± 16	12% ± 1.1%
0-17	110 ± 4	16 ± 7	15% ± 6.4%	15 ± 7	13% ± 6.3%	6 ± 4	6% ± 3.2%
18-34	396 ± 7	100 ± 13	25% ± 3.4%	99 ± 13	25% ± 3.4%	62 ± 9	16% ± 2.3%
35-49	513 ± 10	140 ± 17	27% ± 3.4%	137 ± 17	27% ± 3.4%	75 ± 12	15% ± 2.3%
50-64	207 ± 4	49 ± 7	24% ± 3.7%	49 ± 7	24% ± 3.6%	19 ± 3	9% ± 1.6%
65+	258 ± 4	35 ± 5	13% ± 1.8%	35 ± 5	13% ± 1.8%	11 ± 1	4% ± 0.5%
Male	1,439 ± 14	359 ± 24	25% ± 1.7%	345 ± 23	24% ± 1.6%	233 ± 18	16% ± 1.3%
0-17	135 ± 4	24 ± 6	18% ± 4.6%	24 ± 6	18% ± 4.4%	3 ± 3	2% ± 2.3%
18-34	371 ± 7	86 ± 12	23% ± 3.2%	80 ± 11	22% ± 3.1%	63 ± 10	17% ± 2.7%
35-49	513 ± 10	148 ± 17	29% ± 3.4%	142 ± 17	28% ± 3.3%	116 ± 14	23% ± 2.7%
50-64	263 ± 6	66 ± 9	25% ± 3.5%	64 ± 9	24% ± 3.3%	40 ± 7	15% ± 2.5%
65+	158 ± 3	35 ± 4	22% ± 2.2%	35 ± 3	22% ± 2.2%	12 ± 2	7% ± 1.1%

Information is derived from the Hospital Discharge Data Set maintained by the Vermont Department of Health, and database extracts provided by the Brattleboro Retreat and Vermont State Hospital. Behavioral Health Care (BHC) includes both inpatient mental health (MH) and substance abuse (SA) services. Because data sets used in this analysis do not share unique person identifiers, Probabilistic Population Estimation was used to measure caseload size and overlap (with 95% confidence intervals).

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# Hospital Readmission Rates for Inpatient Substance Abuse Services for Vermont Residents

Individuals Hospitalized for SA Services in CY00							
	# Hospitalized for SA in CY00	Also Hospitalized in CY01 for BHC		Also Hospitalized in CY01 for MH		Also Hospitalized in CY01 for SA	
		Number	% of CY00 also served in CY01	Number	% of CY00 also served in CY01	Number	% of CY00 also served in CY01
Total	1,532 ± 12	421 ± 24	28% ± 1.6%	390 ± 24	25% ± 1.6%	364 ± 20	24% ± 1.3%
Children	53 ± 2	5 ± 4	10% ± 7.6%	3 ± 4	6% ± 6.8%	5 ± 3	9% ± 5.3%
Adult Women	621 ± 7	166 ± 15	27% ± 2.4%	161 ± 15	26% ± 2.4%	131 ± 12	21% ± 1.9%
Adult Men	859 ± 10	250 ± 18	29% ± 2.1%	226 ± 18	26% ± 2.1%	228 ± 15	27% ± 1.8%
Age							
0-17	53 ± 2	5 ± 4	10% ± 7.6%	3 ± 4	6% ± 6.8%	5 ± 3	9% ± 5.3%
18-34	511 ± 7	138 ± 14	27% ± 2.7%	124 ± 13	24% ± 2.6%	120 ± 11	23% ± 2.3%
35-49	640 ± 9	200 ± 18	31% ± 2.8%	188 ± 18	29% ± 2.8%	175 ± 15	27% ± 2.3%
50-64	232 ± 4	59 ± 7	26% ± 3.2%	56 ± 7	24% ± 3.2%	49 ± 6	21% ± 2.4%
65+	97 ± 1	19 ± 2	19% ± 2.0%	19 ± 2	19% ± 2.0%	15 ± 1	15% ± 1.4%
Female	648 ± 7	170 ± 15	26% ± 2.4%	162 ± 15	25% ± 2.3%	135 ± 12	21% ± 1.8%
0-17	27 ± 1	4 ± 3	13% ± 10.8%	2 ± 2	7% ± 9.0%	4 ± 2	13% ± 6.9%
18-34	231 ± 4	66 ± 9	29% ± 4.0%	63 ± 9	27% ± 3.9%	53 ± 7	23% ± 3.2%
35-49	266 ± 5	78 ± 11	29% ± 4.3%	75 ± 11	28% ± 4.3%	62 ± 9	23% ± 3.3%
50-64	76 ± 2	16 ± 3	21% ± 4.2%	16 ± 3	21% ± 4.2%	11 ± 2	14% ± 2.8%
65+	48 ± 1	7 ± 1	14% ± 2.8%	7 ± 1	14% ± 2.8%	6 ± 1	12% ± 1.3%
Male	884 ± 10	252 ± 18	28% ± 2.1%	227 ± 18	26% ± 2.1%	230 ± 16	26% ± 1.8%
0-17	25 ± 1	2 ± 3	7% ± 10.6%	1 ± 3	4% ± 10.3%	1 ± 2	6% ± 8.1%
18-34	280 ± 5	72 ± 10	26% ± 3.6%	61 ± 10	22% ± 3.5%	67 ± 9	24% ± 3.1%
35-49	374 ± 7	123 ± 14	33% ± 3.7%	113 ± 14	30% ± 3.7%	114 ± 12	30% ± 3.2%
50-64	156 ± 4	44 ± 7	28% ± 4.3%	41 ± 7	26% ± 4.2%	39 ± 5	25% ± 3.3%
65+	48 ± 1	12 ± 1	24% ± 2.9%	12 ± 1	24% ± 2.9%	9 ± 1	18% ± 2.4%

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